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ABSTRACT

This report addresses issues concerning arts and sciences majors, including how students and faculty view the major, the organization of the major in many institutions, restructuring the major, the importance of "connected learning," underrepresented students, and common dialogues across disciplines. Also, the report stresses the importance of the major in the intellectual lives of students and advocates significant changes in the way major programs are offered at colleges and universities across the country. Organizing principles for properly structured majors are discussed; these principles are designed to help the students: (1) develop their capacities to understand and analyze; (2) provide opportunities for students to explore questions and generate their own; (3) help students reflect critically on various approaches to knowledge; and (4) relate to general education in a way that helps the students gain perspective on their own fields as well as others. In addition, the report discusses the elements that are determined to be necessary for every major so that the curriculum structure is clearly understood and meaningful. Finally, examples of promising practices are provided that illustrate the different elements of a well-structured major: curricular coherence; critical perspectives; connected learning; and inclusiveness. (GLR)

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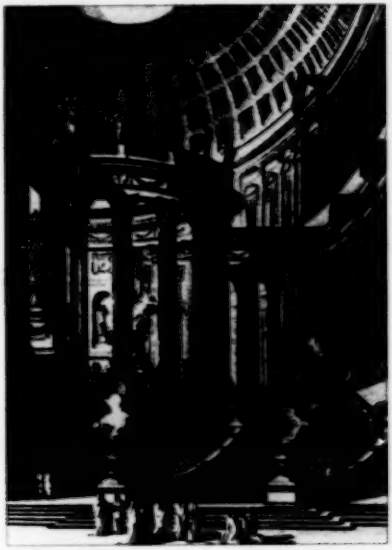
LIBERAL LEARNING
AND THE
ARTS AND SCIENCES MAJOR
Volume I

THE CHALLENGE OF CONNECTING LEARNING



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ASSOCIATION of AMERICAN COLLEGES

LIBERAL LEARNING
AND THE
ARTS AND SCIENCES MAJOR
Volume I

THE CHALLENGE OF CONNECTING LEARNING

PROJECT ON LIBERAL LEARNING,
STUDY-IN-DEPTH,
AND THE ARTS AND SCIENCES MAJOR

ASSOCIATION OF AMERICAN COLLEGES 1991

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FOREWORD

This two-volume report, Liberal Learning and the Arts and Sciences Major, presents the results of a three-year review of liberal arts and sciences majors within the context of liberal education. Initiated by the Association of American Colleges, the review has been planned and implemented in cooperation with twelve learned societies, each of which considered its own major in relation to concerns and questions addressed across the entire project.

The work of this project has been guided by a National Advisory Committee formed by AAC in consultation with the participating learned societies. Volume One of this report, *The Challenge of Connecting Learning*, was prepared by members of the National Advisory Committee. It proposes a set of organizing principles important for any arts and sciences concentration.

Volume Two, *Reports from the Fields*, contains abridged versions of twelve field reports on specific majors by task forces appointed by the participating learned societies. These reports provide presidents, academic administrators, and faculty members with a summary of important issues and recommended changes in each reviewed field. The twelve learned societies separately are publishing unabridged versions of their own reports; they are designed to stimulate dialogue and self-examination in departments and program committees.

Each of these volumes addresses a core set of issues first articulated for the project by members of the National Advisory Committee. In the Charge to the Task Forces, written in the fall of 1988, the National Advisory Committee asked the learned society task forces to address:

- ☐ faculty responsibility for shaping major programs
- ☐ organizing principles for structuring study-in-depth
- ☐ processes for integrating learning
- ☐ relations between the major and other parts of the curriculum.

The National Advisory Committee's own report in this volume and the twelve learned society reports published in Volume Two offer principles and strategies related to these four central themes.

The general report on the major in this volume was written after members of the National Advisory Committee had read several drafts of each of the twelve companion field reports. The argument of the general report is indebted at many points to the exchange with the task forces. It gains particular strength from the task forces' collective acceptance of the issues raised in the project charge as useful and appropriate organizing topics for their own field reviews. It should not be assumed, however, that Volume One presents a project-wide consensus or a syn-

thesis of the twelve sets of views presented in Volume Two. The National Advisory Committee's views have been deepened and on a number of issues reshaped by the project's dialectical process. Not all members of the several task forces would agree, however, with each of the arguments and emphases in Volume One.

The participating learned societies and their respective task forces are listed on page xi. Information on obtaining any or all of the twelve separate reports is on page 225 of Volume Two.

Toward a wider dialogue

We want to emphasize that this work is preliminary. While these volumes contain specific precepts and recommendations, their primary recommendation is a call for serious faculty dialogue about central issues addressed in these pages:

☐ What is the arts and sciences major supposed to contribute within the context of a liberal education?

☐ Are there common touchstones for any liberal arts and sciences major? Should differing or competing assumptions about the purposes of a major across departments and domains be directly addressed?

☐ Have departments specified their expectations for students' liberal learning? Can faculty members explain how particular requirements and intellectual practices serve common goals for students' learning? Can students?

☐ Do faculty members review student work over time in relation to departmental goals? Are the results of such discussions used to review and revise program goals?

☐ Do program requirements and practices support students in bringing together different parts of their learning, within the major and in related fields?

☐ What can departments do to encourage fuller participation by students of all backgrounds?

☐ What are the appropriate relationships between major programs and other parts of the undergraduate curriculum? Should some part of general education be structured to provide critical and integrative contexts for study in particular majors?

These fundamental questions about majors in the context of liberal education require and deserve campuswide faculty discussion.

Integrity and the arts and sciences major

The stimulus and point of departure for this review of arts and sciences majors was the discussion of the baccalaureate degree in AAC's landmark 1985 report, *Integrity in the College Curriculum: A Report to the Academic Community*. That report challenged colleges and universities to consider what kinds of learning a student

ought to achieve in any liberal arts and sciences field, whatever the student's area of concentration. These reports address concentrations themselves, asking what liberal arts and sciences majors should contribute to students' liberal learning and what kinds of curricular structures and practices are needed to support important learning.

The authors of *Integrity* minced no words on the shortcomings of the undergraduate major. "The undergraduate major...everywhere dominates, but the nature and degree of that concentration varies widely and irrationally from college to college. Indeed, the major in most colleges is little more than a gathering of courses taken in one department, lacking structure and depth."

Reports from two other AAC projects undertaken subsequent to the publication of *Integrity* echo this stringent judgment. In the 1989 *Structure and Coherence: Measuring the Undergraduate Curriculum*, a study of seniors' transcripts from liberal arts and sciences majors in thirty-five institutions, Robert Zemsky of the University of Pennsylvania raises pointed questions about the "real curriculum" that American undergraduates experience. Too many students, he reports, are taking "advanced courses" in subjects in which they have had little or no prior curricular experience. In such a context, what becomes of "depth" as a goal for advanced study?

Faculty members in another AAC project (1986–1989) on using external examiners to assess student learning in arts and sciences majors also raised questions about the effectiveness of learning in college majors. In that project, faculty members prepared comprehensive written and oral examinations in their fields for graduating seniors on their own and similar campuses. They then served as external readers and oral interviewers for seniors who took the examinations. Many examiners reported that seniors are less skilled than their instructors had expected in integrating learning across courses.

All these findings challenged AAC to ask whether recent campus reform has focused disproportionately on general education. Discussions in 1987–88 with learned societies indicated that many of them would welcome participation in a collaborative review looking simultaneously at general and field-specific goals for arts and sciences majors. In 1988–89, AAC secured funding from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) and the Ford Foundation to support such a review.

The review of arts and sciences majors

The project, titled "Liberal Learning, Study-in-depth, and the Arts and Sciences Major," has been coordinated by AAC and guided by a National Advisory Committee. It was structured to generate a broad dialogue about college majors that would include students as well as faculty members and administrators, campuses and specific programs as well as national organizations.

The project's National Advisory Committee first framed a set of organizing questions, the Charge to the Task Forces, which appears in Volume Two. The charge was the subject of an all-project conference in March 1989.

For their responses to the charge, the learned society task forces used a variety of sources, including catalogues, formal and informal campus surveys, analyses of previously available data, and discussions with students. Preliminary drafts of the reports were circulated for comment by each task force and were further discussed at the societies' annual meetings and other gatherings.

At the same time, project staff members reviewed specific major programs in disciplinary and interdisciplinary arts and sciences fields. Institutions and project participants were invited to nominate campus programs that exhibit unusual integrity and vitality in their conception and implementation of the major. More than 150 programs were nominated; a sampling is included in the "Promising Practices" section of this volume (page 23).

AAC also surveyed students' perceptions of their learning in the major. Distributed informally by faculty members participating in the task forces and analyzed under the direction of Theodore Wagenaar, professor of sociology at Miami University of Ohio, the survey provided suggestive information on students' experience of intellectual coherence and connected learning across ten of the fields in the project.

The process of looking at the undergraduate major extends to other AAC activities. Articles in two issues of AAC's journal, *Liberal Education* (March/April 1990 and September/October 1990), focused on aspects of the major; the discussion will be continued in the March/April 1991 *Liberal Education* as well.

Both the preliminary task force reports and distinctive campus practices were discussed at AAC's 1990 Annual Meeting, "Undergraduate Majors and the Claims of Liberal Learning," and the project benefitted from the views of those who took part in that meeting. A conference in February 1990 provided a further opportunity for more dialogue and reflection across participating fields.

Final drafts of the reports in Volumes One and Two were completed in late 1990.

Acknowledgments

AAC and the participating learned societies are grateful to FIPSE and the Ford Foundation for their willingness to support a uniquely collaborative dialogue on the major. We thank in particular Peter Stanley, director of education and culture at the Ford Foundation, who first articulated some of the most significant issues with which the project grappled, and Charles Karelis, executive director of FIPSE, whose probing questions and continuing commitment exemplify the best traditions of liberal inquiry.

On behalf of AAC's Board of Directors and members, we also extend our thanks to the leaders of the twelve learned societies for their many contributions to this effort. We acknowledge especially the seventy-one teacher/scholars who served on the task forces. Individually and collectively, they brought a remarkably high standard of intelligence, openness, critical perspective, and simple stamina to a demanding set of activities.

With particular appreciation, we thank the scholars who served as task force scribes and took their committees' respective field reports from early drafts through numerous iterations to the final editions. Well chosen by their respective societies, the scribes served as both guides and servants to the larger communities. AAC and all of higher education stand much in their debt.

Thanks also are due to the thirteen members of the National Advisory Committee, who ably provided leadership and integration to a complex range of activities. They set a high standard for the kind of collegial engagement recommended in these two volumes.

The project is especially grateful to Jonathan Z. Smith, scribe for the National Advisory Committee. In that role, he took exemplary care that each part of the Charge to the Task Forces and the Volume One report from the National Advisory Committee represent the considered views of the entire committee.

Finally, many members of the AAC staff contributed in important ways to the project and to the reports that have come from it. John Chandler, AAC president from 1985–90, was a member of the National Advisory Committee and provided his full support to the project. Associate Director of Programs Thomas Jeavons offered invaluable assistance at all stages of the project. Audrey Jones, project secretary, faithfully kept track of thirteen different arenas of activity, nearly one hundred different travel schedules,

and dozens of meetings and papers; Suzanne Lightman ably coordinated two AAC annual meetings and many smaller gatherings on the topic of the major.

Rhoda Selvin, assistant vice provost at the State University of New York–Stony Brook, who was an AAC fellow in 1989, oversaw the review of promising practices in the major and organized a series of sessions on those programs at AAC's 1990 Annual Meeting. R. Lynn Kelley, dean of the college at Wilson College and a 1990 AAC fellow, has undertaken a similar task for the 1991 Annual Meeting.

Director of Public Information and Publications Sherry Levy-Reiner steered the production—in record time—of both volumes. Assistant Director of Publications David Stearman managed the production process, and Editorial Associates Kristen Lippert-Martin and Lisa Magnino carefully scrutinized the various manuscripts and proofs. Neil Manson, a graduate student in philosophy at Syracuse University, spent the summer of 1989 gathering and organizing the twelve reports. We are grateful to them all.

Majors stand at the heart of the American higher educational enterprise. The Association of American Colleges is proud to have played a leading role in bringing together disciplinary and interdisciplinary groups to engage in an extended and extending conversation about these essential topics.

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1

THE CHALLENGE OF CONNECTING LEARNING

Since the now-ubiquitous major was first introduced in American colleges and universities at Johns Hopkins University in 1878, there never has been a national report devoted to it. Arts and sciences majors consume from one-quarter to one-half of a student's collegiate program and a similar fraction of the faculty's teaching and advising efforts. Yet the major has largely been viewed, within and without the academy, as a self-evident component of college curricula requiring neither an examination of its rationale nor an evaluation of its procedures. After all, when students identify themselves, they most frequently name their major; faculty members find their teaching in major courses most congruent with their professional identities and interests.

Unlike general education, which often lacks either a faculty or a student constituency, major programs are the daily business of small, quite particular, and often well-organized subsets of the faculty. These faculty members design, modify, and implement the major with little, if any, external input or oversight. This contributes to a widely shared ethos that holds each major to be immune from scrutiny and questioning by faculty colleagues outside the field.

The self-containment of the major is especially striking in light of the spirited debates and reform momentum so visible in other parts of higher education. Nine out of ten colleges and universities have embarked upon some form of general education reform, and nearly as many now are considering ways to assess students' learning. There is a heightened awareness of diversity

and of the educational changes implied by the rapid diversification of the student body. Terms such as "knowledge explosion," "global awareness," and "blurred disciplinary boundaries" signal an era in which both founding assumptions and scholarly practices in many fields have become the subject of extensive scrutiny and lively debate.

This report seeks to include all arts and sciences majors in the national debate about purposes and practices in liberal education. It does so in part to challenge the widespread assumption that the now-extensive national agenda for educational reform can be fulfilled primarily by changing general education courses and requirements. But this report equally challenges the ethos of self-containment that has grown up around departmental expectations and practices for arts and sciences majors. The major, at the very least, requires the same sort of educational self-consciousness and public debate that now attend the "general" parts of the curriculum.

The more than three thousand colleges and universities in America vary widely. Each confronts different opportunities and constraints; each has its own distinctive quality and style, both historically and at any given time. Curricula are embedded in these local cultures and represent responses to quite particular institutional ecologies. Major programs also have their own styles and histories, nationally and within any given institution or department.

Arts and sciences fields are also different. Each has its own history, language, heroes, central questions, and constitutive debates. Each offers its own ways of seeing and its own values about what should be asked and what counts as persuasive evidence.

Nor are students alike. Today's colleges serve a more diverse set of students than ever before, a trend likely to increase in the future. The presence of so many different racial, ethnic, age, income, and experience groups promises much vitality; it also means that very little can be taken for granted. Approaches that once seemed at least adequate need to be rethought and restructured as faculty members are challenged to reach students who differ both from their predecessors and from one another. In the long run, education should be enhanced as faculty members experiment with an increased variety of styles, contents, and pedagogies to support students' full participation in learning communities. But there is nothing simple about these challenges; faculty members are charting new paths without obvious markers as they seek to serve effectively a very wide range of learners.

There also are significant differences, on many campuses and in many programs, between faculty and student views of the purposes of a liberal arts and sciences major. These differences require and deserve faculty attention. Faculty members often think of the major as a study of a subject valuable in itself, or as a preparation for advanced, postbaccalaureate studies (with the desire that the best students themselves should enter the professoriat). Students often speak of attaining usable capacities, of the "real-world" value of collegiate education. The fact is that most students do not go to graduate school and a career in the learned professions, nor do they use the content of their major directly in their careers.

All of these differences need to be recognized in constructing responsible and responsive major programs. Yet the common equation of arts and sciences majors with liberal learning also implies some larger goals to which each such major should contribute. It is surely not the subject matter alone—which varies not only among departments or programs in the same field but also among student majors in the same program—that constitutes a major program as "liberal" learning. Liberal learning describes—or ought to describe—intellectual habits fostered through and inseparable from successful completion of a course of study.

This report explores this dimension of liberal learning. It argues that liberal arts and sciences majors ought to foster distinctive habits of mind and explores ways that the major can be organized to foster these habits.

This report is indebted to, and draws added strength from, the companion studies completed by task forces from twelve different arts and sciences majors that are reported in Volume Two. For all their differences in content and emphasis, these twelve studies together attest that each arts and sciences field serves, at least for a time, as a learning community for its undergraduate majors. As a learning community, each major program assumes common commitments and responsibilities, including a responsibility to take seriously its own limitations as a framework for knowing and learning. This way of viewing the major provides a much-needed common framework for examining the shared responsibilities of arts and sciences majors. That there are such responsibilities—held across boundaries of topic and program—is the central message of this report.

THE MAJOR IN THE CONTEXT OF LIBERAL LEARNING

In 1985, the Association of American Colleges issued the report *Integrity in the College Curriculum: A Report to the Academic Community*, which sets forth "study-in-depth" as one of nine experiences that constitute, in the authors' view, a minimum curriculum in the liberal arts. While *Integrity* takes considerable pains never to identify "depth" with the traditional major, toward which it exhibits considerable suspicion, it nonetheless provides principles and standards that are widely understood to apply to collegiate concentrations.

Integrity argues that focused study in a particular area or discipline should convey to the student a sense of "both the possibilities and limits of such study." Study-in-depth should include "sequential learning, building on blocks of knowledge that lead to more sophisticated understanding and encourage leaps of imagination and synthesis." By fostering awareness of complexity, it should provide an increasing sense of mastery as well as limitation: "some understanding of the discipline's characteristic questions and arguments, as well as the questions it cannot answer and the arguments it cannot make."

These educational goals remain integral to the work of the major as liberal learning. It may be asked, however, whether "depth" as a metaphor goes far enough in conveying the full range of the agenda that any major needs to address. Certainly "depth" conceals, rather than illuminates, the social dimensions of the major that are intrinsic to its special role in undergraduate learning.

It is perhaps more useful to think about the major in terms of the appropriately social metaphor of "home." As philosopher Herbert Fingarette reminds us, "Home is always home for someone.... There is no absolute home in general." Neither students nor faculty members can inhabit the totality of the wide world of human knowledge. Recognizing this, the major invites students to enter a quite particular culture. In this way, the major provides a "home" for learning: a community of peers with whom students can undertake collaborative inquiries and a faculty charged to care about students' intellectual and personal explorations as well as their maturation.

For students, learning in the major means learning to take part in a continuing exploration. The role of faculty members is to provide structures and languages that support this participation: structures and languages that enhance and challenge students' capacities to frame issues,

to test hypotheses and arguments against evidence, and to address disputed claims.

The properly structured major enables students to develop an increased capacity to understand and employ a range of topics and analytic tools, as well as characteristic questions and arguments specific to a domain of inquiry. It provides opportunities for students to explore significant questions and generate their own syntheses through carefully structured curricular choices across an extended period of time. It also takes seriously its own necessarily partial vision. The very boundedness of the major should provide an occasion for critical reflection on the successes and limitations of any particular approach to knowledge and for asking searching questions about the values, assumptions, perspectives, consequences, entailments, limits, and choices inherent in any intellectual enterprise.

The work of the major is only partly done when students gain facility in its culture, when they learn the nuances of its special language to such a degree that they can take an active part for a time in its conversations. To fulfill its role in liberal learning, the major also must structure conversations with the other cultures represented in the academy, conversations that more nearly reflect the diversities within our world and require patient labors of translation. Ultimately, the goal of the major should be the development of students' capacities for making connections and for generating their own translations and syntheses. Fostering such capacities is an intrinsic, not an elective, responsibility of each major program.

Viewed in this way, a major requires engagement and disengagement and provides opportunities for both joining and leaving. A student enters the "home" offered by the major in order, finally, to be able to leave it and see it from the outside in, by taking the knowledge, experience, and wisdom gained therein and testing them against the perspectives of other fields and the challenges of the world outside.

For this reason, the traditional distinctions between general education and the major no longer can be sustained. The common curricular model of general studies as preparation for and a preliminary counterweight to the specialized work of the major reinforces the exclusive aspects of the major and subverts its equally necessary inclusive character. Rather, the work of the major needs to open into a larger context of learning in order to develop the fullness of perspective that the discrete disciplines and fields of study cannot help but obscure.

The creative dialogue and tension

among diverse domains of inquiry–which is the hallmark of liberal learning and of general education–requires that students know something well enough to consider it from several points of view so that they are able to contextualize it in significant and suggestive ways. Such sophistication cannot be expected of students before they have worked for some time in concentrated studies.

The capacity for generalizing emerges out of and alongside the major; it cannot be relegated to courses that are preparatory to subsequent focused study. Generalizing education is part of the teaching responsibility of the major program. It requires the development of a set of courses separate from more traditional general courses that introduce students to college and encourage them to sample different fields before they choose a major.

Such curricular structuring of the relationships between general education (seen as generalizing education) and the major cannot be the separate responsibilities of the several faculties associated with each of the major programs. Such structuring must be an endeavor of the collegiate faculty as a whole, working together to create courses of study that recognize difference, that bring multiple perspectives and crossdisciplinary dialogue to bear on common issues, that allow students opportunities for reflection on both the power and the limitations of their particular communities of inquiry, and that foster the fashioning of connections.

WHAT STUDENTS SHOULD EXPECT

While education cannot occur apart from specific content, students have the right to assume that education will amount to more than "coverage" of unconnected subjects and more than exposure to information that could be acquired through solitary study apart from the communities that colleges create. The problem with the major is not that it has failed to deliver certain kinds of knowledge. The problem is that it often delivers too much knowledge with too little attention to how that knowledge is being created, what methods and modes of inquiry are employed in its creation, what presuppositions inform it, and what entailments flow from its particular ways of knowing. The problem is further compounded when the major ignores questions about relationships between various ways of knowing, and between what students have learned and their lives beyond the academy.

Students have the right to expect their major to provide a set of learning experiences that will teach them

how to use their field's approaches in pursuing significant questions. They have the right to expect opportunities to integrate the learning gained in their various courses to construct increasingly sophisticated structures of knowledge. They have the right to expect learning experiences that will encourage them to shape, reflect on, add to, challenge, and use the knowledge they are gaining. They have the right to expect opportunities for translating and negotiating among different approaches and for exploring the strengths and limitations of the lenses through which they have learned to view issues and problems. They have the right to expect opportunities and support for relating their learning to their own lives and to significant questions in the world beyond the classroom. Finally, students have the right to expect that all of the capacities and knowledge they have gained will be assessed, by faculty members, through carefully designed occasions that challenge them to integrate and demonstrate their learning across their specific programs of study.

In sum, students have the right to expect to experience enculturation into a particular learning community to such a degree that they gain a sense of confidence; they have the right to expect to experience occasions which require critical distance from that community; and they have the right to expect structured moments for conversation between communities, both within and without the academy.

CURRICULAR COHERENCE

Majors are the responsibility of faculties. They require faculty members' willingness to develop a shared understanding of what study in the major is supposed to accomplish and faculty members' collaboration in designing a coherent program of study sufficient to accomplish it. They require faculty members to consult about ways these common goals intersect with the varying needs of different students.

This is not to ask for some grand intellectual scheme, some universal agreement, that will integrate all the various dimensions of a field in a larger synthesis. It is to insist, however, that suspicion and conflict on such matters does not excuse a faculty at a particular institution from attempting to provide a local structure for a course of study in a major that can specify its goals, ensure that these goals are communicated to students and faculty members alike, and assess the degree to which these aims are achieved. It is also to insist that faculty members concern themselves not just with course requirements but with the ways that a major's parts and practices contrib-

ute to its larger purposes.

A major course of study ought to have a principle or principles of organization.

A major in a given field may be organized in a variety of ways, none of which is inevitable or universally appropriate. The chosen mode of organization, however, ought to be the result of deliberate and corporate faculty judgment. An educationally coherent course of study should be designed not prospectively but retrospectively. Faculty members ought to begin with a set of goals for student achievement and then design a curricular structure that fosters their attainment.

The subject matter of a given field may provide the principles of organization. Some majors are organized by units of time, by place, by analytic approach, by subfields, or by a combination of some or all of these and other ways of dividing the subject. Other majors have a sense of logic, a progression of knowledge and techniques that move in sequential order. The first type more often exhibits a loosely structured, highly elective, middle range of courses (including topical courses and offerings in theory and method), preceded by an introduction and, at times, concluding with an independent research project. The latter pattern usually employs some system of prerequisites. Some programs may combine both patterns.

These commonly employed arrangements of subject matter are not the only source of structure. A major can be organized around a set of problems or contested issues characteristic of a given field of study. The various subject courses can provide exemplary cases and a sense of historical situations or contested issues; at the same time, the courses develop students' skills and enable them to address these issues responsibly.

Alternatively, a direct focus on students' learning can provide a major with its overall principles of organization. This focus requires attention to the knowledge students bring to a field and to the ways in which students construct knowledge within a discipline. It can be usefully informed by faculty members' attention to the rich and suggestive scholarship on how students learn that is emerging in a number of academic domains. In some major programs, a faculty member's understanding of cognitive goals and strategies can guide the design and sequence of different parts of the curriculum. In other programs, attention to students' different learning styles can suggest ways of structuring the curriculum. These structural approaches depend on a shared faculty understanding of processes of intellectual development and of modes of learning appropriate for particular do-

mains. They offer a way of bringing shared purpose, organizing principles, and intellectual progression to fields in which the subject matter itself can be organized in any number of courses and patterns.

A major ought to have a beginning, a middle, and an end—each contributing in a different but specific way to the overall aim of the major.

In many majors, the first course frequently is a well-organized survey or introduction. In some programs, the last course may be an individualized research project or a senior seminar. What falls in between—the bulk of the work of the major—is all too often haphazard, at times exhibiting only numerical or political principles of organization: five to ten courses within the department, a course with each faculty member, or the like. Such haphazard procedures—more common in some fields than others—exhibit the fallacy of thinking of the individual course, rather than the program, as the basic educational unit. When the organizing principles for a program are unclear to both faculty members and students, it can be no surprise that each group approaches any particular course as a self-contained unit rather than an experience that ought to contribute discernably to larger aims.

Faculty members responsible for a program must take collective responsibility for shaping a core set of courses that establish an intellectual agenda for their majors. Courses in this core may need to differ from traditional introductory courses designed to serve institutionwide general education purposes. This set of core courses should introduce the kinds of questions a field typically asks, explore the ways it undertakes investigations, specify its frames of reference, and expose its disputed issues. Such courses also should provide exemplary occasions for students' analyses of others' work as well as opportunities to put forth their own. At the very least, faculty members should introduce the methodology and modes of inquiry characteristic of the field to all majors at an early point in their studies; subsequent courses should require students to utilize these methods and modes.

In many fields and programs, the middle-range courses are either highly elective or organized by categories that serve as miniature distribution requirements. This thwarts reasonable expectations that learning is cumulative across courses and that later learning builds on or restructures earlier learning. The major, especially in its middle-range courses, is structured to take time. The length of time the major takes is justified by students' need to return to matters studied earlier and revise

what they have learned in the light of fuller understanding. This recursiveness in the curriculum is the enemy of naive acceptance. In many programs, ironically, both the overall number of course offerings and the content of individual courses seem governed by the notion that more is better, producing a hurried and harried educational experience. Less material treated with more attention to reflexivity ought to be the norm.

The middle-range courses—beyond their traditional goals of conveying topical knowledge, characteristic issues, and methods indigenous to the area—provide students with opportunities to explore directly issues attendant on expert inquiry and argumentation: questions as to what counts, what may be taken for granted, and what needs articulation within a given community of discourse. Middle-range courses also should provide opportunities for students to begin the processes of gaining critical perspectives and making connections. They provide an appropriate point through which to structure interactions with other parts of the curriculum in the interests of fostering generalizing education. The middle-range courses also may serve to create and enhance community by experimenting with less solitary modes of discovery such as student internships, collaborative learning projects, or peer teaching.

Given the educational potential of the middle-range courses, the present pattern in many fields of highly individualized student programs leading to few courses in common must be questioned. Cafeteria-style course offerings guarantee little common basis for discourse among majors. If the major is to be a learning community, both curricular goals and intellectual engagement are served better when faculty members ensure that students take in common either some reasoned fraction of a program's offerings or one of several carefully constructed alternative concentrations within a larger program.

Even if faculty members take seriously the challenge to create a set of common experiences for students, in most fields and institutions a significant part of each student's program will remain *de facto* individualized. In most colleges, where the option exists for a self-designed major, the student is expected to account formally for the ways in which each course will contribute to her or his overall program. The same expectation, in principle, ought to govern the traditional major. The individualized work in the major should not remain a student's own private enterprise; occasions must be designed to make it public. Students ought to be asked to consider how their elective choices within the major cohere. Their choices should be subject to

periodic review, emendation, discussion, and advice from faculty members and peers. Such collegial discussion of students' individual choices appropriately complements periodic faculty-student dialogue about what is supposed to be accomplished through the common parts of the program and what in fact is being accomplished.

The end of the major ought to be a time for integrating knowledge, concepts, and capacities from the different parts of students' learning experiences. Programs can support this work by establishing structures, such as the "capstone course," which allow broad reflective and critical views of the field of concentration or bring together students from adjacent fields to explore their similarities and differences. Alternatively, programs may encourage each student to construct an intellectual autobiography. Students might be asked to put together a representative "portfolio" illustrating their progress and accomplishments in the major and related courses, or they might be asked to write an interpretive essay that critically examines their own work. Students can revise earlier work or do research that draws on earlier work. Minimally, curricular space should be allotted for faculty-student discussion of this integrating activity; students need to bring together their studies, and the process cannot be a solitary or accidental one.

The structure, organization, and intent of the major course of study ought to be made clear to students.

Faculty members in the major should know and make explicit to their students how their courses relate to the organizing principles of the major as a whole and structure their courses accordingly.

At the very least, these two principles call for catalogue copy and program announcements that are informative of the rationale for the overall course of study, in its several parts and as a whole, as an expression of corporate faculty understanding. These principles suggest, as well, the need for the faculty members in a program to be truly knowledgeable about one another's classes and to organize their classes on the bases of mutual discussions and understandings. Courses in the major can reflect and contribute to the overall purposes of a program only if faculty members talk to each other about what they are attempting and how it is succeeding. Careful advising is also necessary, not only to assure that the requisite number of courses are taken but also to support a continuing discussion about the program's purposes and students' experiences. The sense of community that ought to characterize any major derives not so much from particular require-

ments as from a shared and enunciated sense of purpose and from activities that sustain engagement.

The organizing principles for a major have their most powerful expression in the structure and substance of particular courses. The course syllabus, therefore, ought to be the first text carefully studied in every class. A mere reading list or itemization of assignments is insufficient as a guide to the work of a course. Students need to understand not only a course's content and procedures but also why they are taking a particular course and how it will contribute to their overall educational experience, within the major and within their entire course of study. Classes also should spend time discussing the choices represented by the syllabus, including the reasons materials are chosen or rejected and the basis for relative time allocation. Such discussion will do much to impeach the apparent self-evidence of the syllabus and establish its status as a constructed plan.

CRITICAL PERSPECTIVES

Students join the community of the major briefly; ultimately, they must disengage and leave. An essential step in this process of disengagement is the achievement of some measure of critical distance. Part of the articulated purpose of the major, therefore, is to prepare a student to be sufficiently confident in the discourse of a community to subject the major to sophisticated questions and to compare and connect its proposals with the proposals of other communities. Students must encounter the limitations of their temporary home and explore the possibilities beyond.

Any proposal from any community as to "what is the case" is necessarily partial and bounded; any proposal is necessarily simpler than the complexity it attempts to describe and explain. This is simultaneously the source of its cognitive power and the grounds of its critique. This is a central reason why students and faculty members must work within a collegiate setting with an ethos of communication and contestation that ensures that no proposal stands without alternatives or arrogates to itself the claim of possessing the sole truth.

Every student should experience the intellectual excitement that comes from the capacity to extend the known to the unknown and to discern previously unsuspected relationships. Developing these capacities requires acceptance of specific imperatives. Students must be willing to revise what they have held previously as certain by shifting perspectives and they must engage in the kind of collaborative work in which

they become open to criticism. This implies an academic community that sees as an important value of liberal learning bringing private precept into public discourse. It implies equally an academic community which insists that difference be negotiated with civility. Public civil discourse depends, among other conditions, on an ethos of corrigibility. Faculty members must take seriously what students believe about a given subject and engage their prior knowledge so that new learning restructures the old, complicating and correcting it rather than merely living side by side with it.

The culture of a major, like culture in general, is not best understood as a stable deposit transmitted from experts to novices. Culture is not passively appropriated; rather, it consists of a set of highly contested constructs and values that continually must be negotiated and renegotiated by active participants. The coherence of a culture well may lie in its refusal to allow differences to remain incoherent and inarticulate. The academy is one of the privileged social loci devoted to this process, a place where a variety of competing proposals may be explored, experimented with, and evaluated apart from urgent needs and ineradicable consequences.

By attending to the knowledge claims of the major over time and by treating increasingly complex matters from multiple points of view, students discover that nothing is self-evident, that nothing is simply "there," that questions and answers are chosen and created—not given—and that they always are framed by context; for that reason, they always are contingent.

Awareness of contingency takes many forms. It is important for students to know that ideas and methods have origins and histories, that they take place in quite particular times and places. It is important for them to know that ideas represent interests; that ideas are framed by gender, ethnic, social, political, economic, and other cultural and ideological perspectives. It is important for them to know that ideas have power but that this power is not always beneficent. It is important for them to know that there are other points of view that require a sympathetic exercise of the imagination to comprehend. We live in a world characterized by multiplicity, plurality, and difference. We are educated in this world to the degree that we are aware of our own boundedness and partiality, and we that we become skilled in seeking out, understanding, and integrating the perspectives of others.

It is equally important, however, that knowing these things not result in paralysis or some easy relativism.

Students cannot be allowed to be content with the notion that issues may be addressed by any number of equally valid formulations among which they cannot choose. They must learn to discriminate by arguing, and they must realize that arguments exist for the purpose of clarifying and making choices. Students need to learn, through the kind of extended and direct experience afforded by concentrated studies, to be able to state why a question or argument is significant and for whom; what the difference is between developing and justifying a position and merely asserting one; and how to develop and provide warrants for their own interpretations and judgments.

Accomplishing these goals cannot be taken for granted or left to students' unaided and solitary musings. It is an iron law of education that students will neither criticize nor integrate what the faculty will not. There must be curricular space and academic credit as well as persuasive guides and models to support student practice in developing critical perspective. Faculty commitment to join disparate points of view within and across disciplinary boundaries is an indispensable foundation for the critical judgment that the major needs to develop.

CONNECTED LEARNING

For most students in most major programs, fostering capacities for reflection on what happens beyond the academy must be the larger goal. The discourse of the academy is but a means to an end, a developmental step along a path that appropriately points students toward a multitude of contexts and circumstances. Students come into the academic "home," not to become permanent residents, but to be nurtured and supported as they develop the capabilities they need to enter, negotiate, and make connections across communities of discourse both within and without the academy.

There are two ways, by no means unrelated, in which the term "connected learning" may be employed. The first refers to the capacity for constructing relationships among various modes of knowledge and curricular experiences, the capacity for applying learning from one context to another. The second refers to the capacity for relating academic learning to the wider world, to public issues and personal experience. In either case, connected learning means generalizing learning: learning that extends beyond the necessary boundaries of any major and takes seriously its potential translation beyond the limits of a course or program.

Although the structures of departments, academic majors, colleges, and universities reflect traditionally linear and divided ways of organizing, presenting, and producing knowledge, the intellectual practices of faculties today are bursting these boundaries. In many colleges and universities, the traditional disciplinary structures are permeated by crosscutting institutes, seminars, workshops, and the like. Aided by professional societies and the technology of facsimile transmissions and electronic mail, research in many fields is becoming more collaborative, and disciplinary boundaries are increasingly blurred.

These developments have created a marked disparity between the ways academics do their research and the institutional structures that organize curricula and teaching. In the arresting image of historian John Higham, the contemporary academy looks like "a house in which the inhabitants are leaning out of the many open windows gaily chatting with the neighbors, while the doors between the rooms stayed closed."

While faculty members are becoming liberated, however, students experience most acutely the closed doors of classrooms cut off from one another. What are needed are incentives and structures to ensure that the intellectual excitement of discovery, interaction, and critical discourse that many faculty members experience also is available to students.

The forging of connections between seemingly discrete topics and disciplines—the sometimes playful synthetic capacity for discerning previously unsuspected relationships—takes place most often at the boundaries of a field, more rarely at its core. The ability to work at the periphery, however, requires a confident knowing and understanding of the core. At its best, the traditional major has offered a curriculum designed to convey what is central to a given discipline or area of study. But the synthesizing enterprise—the bringing of what one has learned in one context to another, from one community to another—has been left almost entirely to students' private initiative. It ought to take place in public, accredited, curricular space.

The second sort of connected learning hitherto has been even more private, even more unacknowledged by the formal, public curriculum. It is the way students use their studies to think about questions that matter to them personally.

Each field is structured around questions it considers central to examining the reality it studies. The reasons these questions are viewed as central, or even meaningful, may not always be clear to students. The centrality given to these scholarly ques-

tions also may teach students to suppress their own questions and concerns as naive or inappropriate. The course of a program of concentrated study should allow students to see and explore the connections between primary issues in the field and their own significant interests and concerns.

While it is important for students to develop a detached critical perspective on subject matter, it is equally important for them to care about subject matter and see its implications for the ways they live their lives. At issue is whether students can connect a field's subject matter and approaches with a variety of pursuits important to them, and whether their curiosity and concerns beyond the classroom can be deepened or shaped by the insights the field brings forth. This requires teaching and opportunities for reflection that encourage students to test the assumptions and proposals of the field against questions and evidence drawn from their own experience.

Students should be invited to engage in both forms of connected learning by participating in collaborative work with other students. Through mutual interviewing—careful questioning and active, attentive listening--students can help each other identify, articulate, and elaborate their own driving questions and build on each other's ideas. Questions about meaning and significance should be addressed in a setting that encourages collaboration in the exploration and reformulation of issues in relation to both academic inquiry and personal experience. This kind of dialogue should give students practice in entering into frames of reference of people with differing experiences of, and assumptions about, the world.

This process—in some way a sharing of stories—can help students shape an intellectual autobiography. Fully conceived, the intellectual autobiography becomes a story that relates students' curricular and extracurricular experiences in significant and connected narratives with both retrospective and prospective clarities or uncertainties and with implications for both personal and public life. The accredited public space that ought to be provided for connecting learning should involve both faculty members and student peers in listening, valuing, and creatively engaging such stories.

In the final analysis, the challenge of college, for students and faculty members alike, is empowering individuals to know that the world is far more complex than it first appears, and that they must make interpretive arguments and decisions—judgments that entail real consequences for which they must take re-

sponsibility and from which they may not flee by disclaiming expertise. Major programs characterized by a concern for coherence, critical perspectives, and the construction of connections play significant roles in achieving that end.

INCLUSIVENESS: REDUCING BARRIERS FOR UNDERREPRESENTED STUDENTS

Even as students from diverse ethnic, racial, and economic backgrounds have entered the academy, they remain underrepresented in many arts and sciences majors. Women also are underrepresented in specific fields, especially in some of the sciences. Redressing imbalances cannot be left to the admissions office or to an institution's promising collaboration with the local public schools. Faculty members in each program must explore what obstacles their fields present to the participation of discrete groups of underrepresented students and make a strong commitment to eliminating those obstacles.

The problem of full participation in arts and sciences majors no longer can be framed in terms of access alone; what is needed is a reformation of present practices. This reformation cannot be separated from the central obligations of major programs already described. Faculty commitment to establishing curricular coherence, critical perspectives, and connected learning provides an overarching framework through which programs can examine their practices and reach for full participation of all students in arts and sciences fields.

☐ *Curricular coherence.* One of the hallmarks of curricular coherence is a corporate clarity about the differing educational roles of introductory courses, middle-range offerings, and culminating experiences. These distinctions have special relevance when applied to underrepresented students. All too often, courses designed to introduce students to a field's community of inquiry communicate to these students that their participation is not welcome; that the major is not their home; that the field does not recognize, reflect, or value their goals, perspectives, and experiences.

A particular problem is the routine use of introductory courses in some fields as screening devices to filter out, at an exceedingly early stage, students who do not readily fit faculty members' expectations. In programs where disparate patterns of participation are a problem, faculty members need to work together to design multiple entry points to the major. This does not mean remedial courses or separate tracks beyond

the purview of the particular program. It means more intensive courses that take as a point of departure "where students are" and the particular difficulties that specific contents frequently present. Where students enter departments with markedly different backgrounds and preparations, there may need to be different versions of the same course, some requiring more time and carrying more credit hours. There are exemplary instances of carefully crafted multiple entry points in some institutions and some fields; there should be many more.

Staggered patterns of attendance as well as movement among institutions (often characteristics of adult and minority students) challenge widespread assumptions that coherence is best achieved through strict serial order. What does it mean for a student to have taken one part of a requisite set of courses at one institution and a second part years later at another? Faculty members in institutions serving significant numbers of intermittent and transfer students may need to design multiple entry points into the community of the major. They may need, further, to follow the example of baccalaureate programs designed specifically for adults and offer their own workshops on educational planning in the major for transfer and returning students in each semester or quarter.

In designing major programs, faculties also need to reflect on appropriate points of entry for adult students returning to college with a broader range of practical experiences than the traditional college-age student. As adults become a major constituency on many campuses, they challenge faculty members in each field to draw on adults' experience outside of school as a resource that enriches the work and discussion of the learning community as a whole.

There is no single approach to initiatory courses that will apply to all colleges and all major programs. What is required of each institution and each field is a strong affirmation of the educational benefits of diversity and a continuing faculty dialogue about the ways initiatory experiences in a field can contribute to, and lay the foundations for, the widest range of students to achieve success.

Attention also must be given to programmatic elements that assist and encourage students in developing increasing competence and confidence in the culture of a particular learning community (the function of middle-range courses) thereby helping more students succeed. Some students "fit" easily; others remain on the fringe; others fall away. Corporate attention to the ways in which a major works as a total program, rather than a set of discrete

(and often disparate) courses, can establish a series of points at which faculty members both assess and support students' continuing progress in the field.

When faculty members establish clear understanding of the goals of a major program, they can communicate their expectations more effectively to students and advisors. They also can explore alternative ways to enhance successful participation—for example, through peer advising, workshops on educational planning, focused study groups, linking student course choices to their performance on mid-course assessments, and the like.

☐ *Critical perspectives.* Encouraging critical perspectives on the limits of the field also can open specific majors to broader participation by including all students in substantive dialogue. For the past two decades, there has been a series of intense scholarly exchanges about the emphases, assumptions, and values of particular fields. Research and criticism from women's studies and from racial and ethnic studies have introduced new dimensions into every area of study. Intense and fruitful debates rage about legitimate areas of inquiry, knowledge in different fields, who possesses knowledge, and the relations between power and knowledge. None of these issues is settled; some ultimately may prove short-lived. But the range of the debate—the issues and consequences it has opened—encourages faculty members and students alike to engage in the critical discourse and arguments that underlie all claims to knowledge.

Too often, faculty members view these debates as separate from their work as educators. Even as they address these issues in their scholarly journals and conferences, they withhold them from their students. Highlighting these strongly contested topics as well as the role of previously excluded groups in shaping these debates can help a broader range of students find a home within a given field, discover their own questions and concerns in fields that once seemed indifferent or closed, and develop a sense of their own role in formulating constructive and critical proposals. Above all, highlighting these strongly contested topics will involve students in fields of liberal learning at their best, functioning as communities committed to collaborative processes of dialogue and inquiry.

☐ *Connected learning.* Connected learning calls for actively making relationships among fields, applying knowledge from one context to another, and taking seriously students' interests in relating academic learning to the wider world of public issues as well as individual experiences and goals. Even as faculties work to

help students develop a richer sense of what liberal education can be, they also should take seriously students' concerns with linking what they learn in college to their lives and careers.

Students who are most likely to enter college with practical and vocational interests also are most likely to shy away from arts and sciences majors. Such students may experience the greatest distance from those faculty members who communicate a conviction that learning is valuable *solely* in itself, apart from (indeed, indifferent or hostile to) any practical applications. Similarly, many fields communicate to students that it is inappropriate to think about connecting their personal questions and concerns with the contents and methods of the major. To the degree that major programs are reformulated to encourage occasions in which practical and personal concerns publicly enter into dialogue with the assumptions and proposals of specific fields, the goal of full participation in communities of learning and inquiry is advanced.

CONCLUSION

In 1985, *Integrity*'s authors argued that one of the chief causes for the disarray of the curriculum and the demise of good teaching was the increased professionalization of the professoriat and faculty members' development of primary loyalties to their disciplines rather than to the institutions where they taught or to their students. AAC's Project on Liberal Learning, Study-in-depth, and the Arts and Sciences major has explored an alternative possibility: that there are important resources for educational renewal in the commitments both faculty members and students make to college majors.

In this spirit, this report aims to return the challenge of strengthening both the curriculum and teaching to discrete campuses and to major programs. It suggests that we can link central concerns of liberal education to institutional structures where harmony between professional interests and pedagogical commitments is most likely to be found.

There are long traditions of debate in all fields about what should be taught to majors and about the relationship between requirements for majors and the logic and structure of intellectual developments in the sponsoring fields. These same debates have exhibited too little attention, however, to the *educational* coherence of major programs as they are experienced by the students who take them. It is one thing to say that each student major will take courses addressing particular subject matters; it is quite another to develop educational strategies that help students

develop competence in using, interrogating, and integrating their learning across the boundaries of course and field.

This report calls disparate fields into a shared dialogue and a sense of common enterprise. It does so by emphasizing the absolute requirement of bringing students back into the picture and making their need for coherence, critical perspectives, and experiences of connected learning central to the work of the major in the context of liberal learning.

This report also asks for collective and collaborative faculty discussions about ways of translating these common commitments into institutional practices and structures. This translation must begin with time and space for faculty dialogue; it must be supported by visible and concrete rewards for participating in such discussions. It needs, as well, provision of the means to experiment in ways appropriate to the particular institutional settings of diverse fields.

It is not enough for deliberations about the major to be exercises at the blackboard diagramming curricula that "look right" but have little effect either on course practices or student experience of the major. Faculty members' deliberations about majors as educational programs need to become part of a continuing collegial dialogue about the relationship between faculty intentions and student progress.

Departments and programs cannot be expected to make these commitments independently. Collegial leadership within and across programs both deserves and requires full institutional support from presidents and academic administrators. What are needed in the long run are institutional environments that build a sense of common enterprise and institutional priorities that recognize the integral connections between work in the major and overarching goals for liberal learning.

This report suggests a common language through which to explore arts and sciences majors. This language will need translation into a host of specific idioms appropriate to different fields and institutions. But the common language also makes possible conversations and explorations that cut across particular fields and boundaries. The terms of discussion are preliminary; the most important goal of this report is to engage students, faculty members, and administrators in long-needed local conversations about the role of majors within the context of liberal learning.

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PROMISING PRACTICES

The argument presented in *The Challenge of Connecting Learning* has been influenced significantly by an informal review of strong major programs—disciplinary and interdisciplinary—conducted in 1989–90. Approximately 150 arts and sciences programs considered distinctive in their conception and implementation of particular majors were recommended to the project by academic deans and faculty members participating in the learned society task forces. Under the direction of Rhoda Selvin, assistant vice provost at the State University of New York–Stony Brook, who was an AAC fellow in 1989, AAC staff members identified organizing principles and distinctive practices embodied in these campus majors. Illustrative information about these programs was shared with the National Advisory Committee and with the task forces.

The curricular principles and educational practices exemplified in these campus majors offer concrete clues to the thinking of faculty members who share, in their daily work, the project's interest in the major as liberal learning. Equally important, they provide evidence that the organizing principles for liberal arts majors urged in the National Advisory Committee's report in fact can be implemented in a variety of ways and at all kinds of institutions.

Brief descriptions of some of these "promising practices" follow. They are included here as operational examples that relates to the argument presented in the first part of this volume. They are grouped according to the way they illustrate the four principles of a well-designed program of focused study: curricular coherence, critical perspectives, connected learning, and inclusiveness. Each of the sections below begins with an excerpt from the corresponding section in the National Advisory Committee's report above.

The March/April 1990 and September/October 1990 issues of AAC's journal, *Liberal Education*, also include descriptions of a number of illustrative majors and programs.

We recognize that the assignment of the practices described below to one or another category is somewhat arbitrary. Many of them would fit equally well into more than one grouping, suggesting and illustrating the ways in which the different principles work together to foster a rich and challenging education. Indeed, to the degree that any one practice usefully addresses liberal learning in the context of the major, it ripples through all aspects of the undergraduate experience.

The project discovered numerous examples of programs that emphasize coherence and connected learning across courses—far more than are listed below. It is evident that many strong programs have given these principles priority in their conception and implementation of the major. By contrast, there were surprisingly few instances in which campus majors reported specific strategies to elicit critical perspective on the approaches of the field. The development of critical perspectives has been left, apparently, to general-education courses, even though these courses typically precede the major and even though students take them before they have developed any significant understanding of disciplinary frameworks and their uses in the development of knowledge.

Similarly, the project discovered only a limited number of instances in which faculty members in a department or program had taken primary responsibility for opening their majors to broader student participation. While virtually every task force report in Volume Two affirms the importance of reducing barriers to underrepresented students, there seems to be a clear need for both national and local discussions of strategies that will achieve this outcome in particular fields.

We hope that, in considering these examples, readers will both better understand the practical implications of the National Advisory Committee's report and find ideas to strengthen major programs on their own campuses. The reconsideration of the undergraduate major advocated here and in the learned society reports in Volume Two can have meaning only when it is given life in the particular practices of particular college majors.

CURRICULAR COHERENCE

Majors . . . require faculty members' willingness to develop a shared understanding of what study in the major is supposed to accomplish and faculty collaboration in designing a coherent pro-

gram of study sufficient to accomplish it .... [F]aculty members [need to] concern themselves not just with course requirements but with the ways that a major's parts and practices contribute to its larger purposes. (pp. 7–8)

Biology major:
small liberal arts college
This college's major in biology consists of an integrated series of four courses that form a common intellectual and practical framework for work in advanced courses. Advanced courses in the major intentionally reinforce and build upon the concepts and laboratory skills students acquire in this shared initial experience. The development of writing, speaking, and laboratory skills is integrated into the intellectual framework of the curriculum. Advanced students take a research seminar and make an oral presentation on their research topic. All students who major in the program take a senior comprehensive examination that requires them to write essays integrating information from different courses on major problems facing living systems.

Social ecology program:
large public university
This program in social ecology is built around problem-focused, interdisciplinary instruction. Students take a series of core courses, each of which integrates several disciplinary perspectives. Students then concentrate in one of three multidisciplinary areas of emphasis. In order to synthesize their learning and relate it to real-world applications, each senior takes "Introduction to Field Study" and spends two quarters in a field setting. Students in the field study meet weekly in faculty-led small groups. They also develop a substantial paper.

Public policy studies program:
large private university
This interdisciplinary course teaches students to apply methods and models of economics, political science, philosophy, and history to the study of public policy. The program requires a common core of study, including an introductory course in public policy; two prerequisites in political science and microeconomics; and four core courses in political analysis, economic analysis, statistics, and ethics. The required synthesizing component is an internship that gives students experience in applying interdisciplinary approaches to problems experienced by public and private organizations.

Economics major:
private liberal arts college
Like most economics departments, this major program requires all students to take a core set of required

courses. This department, however, supplements the traditional lecture/discussion format with computer-based laboratory work. Designed to help students learn how economists analyze data and develop arguments, the laboratories challenge students to develop empirical foundations for their own arguments and analyses. The laboratories are run as small group tutorials, enabling faculty members to test how much students understand and address specific problems. The laboratories also break down the typical faculty-student hierarchy, since faculty members work collegially with students in finding ways to interpret new data and solve unexpected problems. The emphasis on linking theory and practice offers a continuing thread through the major from introductory work through a required advanced laboratory course.

Interdisciplinary program in liberal studies: mid-size public university
All students take a common set of writing-intensive core courses taught individually but developed and continuously assessed by the program's faculty members. All courses share elements of the program's overarching themes: human nature, social purposes, the relationship of the individual to the material world through both art and science, and the structure and evolution of consciousness. Underlying the entire program is the issue of evolving meaning as it relates to the purposes of a liberal education.

All majors:
mid-size private university
Students take a common set of interdisciplinary topical courses. Additionally, each student is expected to construct, with assistance from advisors, a written learning plan that describes goals for study, organizing questions, and ways that individual course choices relate to the overall plan. The student is expected to revise the document periodically; thus, it becomes a autobiographical narrative of the student's developing interests and commitments.

History major:
small private college
All students in this major are expected to complete a Senior Exercise that challenges them to revise and integrate parts of their earlier work in the program. In their senior year, students develop a portfolio based on their three best research papers: they rework one earlier paper and resubmit the other two with essays explaining why and how they would revise each paper. To complete the exercise, students write a new paper about some aspect of their development as historians, addressing methods, themes, change, or other

interpretive issues. Each senior has an oral interview with two faculty members to discuss his or her work.

All majors: small private college
During their senior year, all students complete a major project or thesis. The project is viewed as a culminating activity both for the major and for the general-education program, which places particular emphasis on developing students' analytic capabilities. All students present their work publicly during a Senior Thesis Week. Requirements vary with departments; students may make poster presentations, video or audio recordings, or oral defenses, or they may organize and participate in panel discussions. Some departments ask students to discuss the societal implications of their work. The college has sponsored faculty development workshops to help faculty members coach students for planning and making their presentations.

CRITICAL PERSPECTIVES

Part of the articulated purpose of the major . . . is to prepare a student to be sufficiently confident in the discourse of a community to be able to subject the major to sophisticated questions and to compare its proposals with the proposals of other communities. (p. 12)

Bi-disciplinary courses and senior baccalaureate forum: liberal arts college
At this small liberal arts college, all students take "bi-disciplinary" courses, usually in their sophomore year. The thematically organized courses are taught by two faculty members, each representing a different discipline. The courses are designed to help students see how different disciplines approach the same issues and provide partial—sometimes complementary, sometimes contrasting—descriptions and understandings of phenomena. As seniors, all students are required to take a baccalaureate forum in a broad area related to their major field: humanities, social sciences, or sciences. The forums bring different disciplinary perspectives to bear on a topical issue. Students are required to develop research projects for the forum, present their findings in ways that are comprehensible to those in other fields, and engage in dialogue with faculty members and students who approach the same questions in different ways.

Cross-disciplinary philosophy course: small liberal arts college
This course is required of all juniors and highlights the connections between philosophical concepts from primary texts and ideas developed in the first two years of the students'

general-education program. Students are grouped by academic interests to facilitate their examination of connections between philosophical questions raised in this general-education course and their primary field of study. This course provides a philosophical and ethical knowledge base for students' senior research and independent study.

Economics: large state university
In response to new emphasis on writing, critical thinking, and global awareness in the general-education program, this economics major program has deemphasized subfield specialization to focus on developing students' capacities for analyis and communication in economics. The department takes this emphasis a step farther by helping students examine, first, the scope and limits of economic theory in addressing certain kinds of issues and problems and, second, ways that other social sciences address similar problems.

History and humanities program: small liberal arts college
History majors in this institution take beginning and intermediate-level courses that emphasize contextual interpretations of history. Simultaneously, they enroll in at least two parallel courses in other humanities fields that deal with those disciplines' approaches, interpretation, and arguments. By taking these interpretation courses in relation to one another, students develop an understanding of the power and limitations of disciplines as systems for uncovering structures and meanings.

Women's studies program: small private college
Building on the nature of women's studies as an inherently interdisciplinary field, this program examines a variety of disciplinary critiques of inequality and difference in gender, class, and race. Students are required to take courses that explore these same issues from the perspectives of other cultures. Students also are required to define their own concentration within women's studies and make an argument for its coherence, necessitating their exploration and articulation of the connections among the elements of different disciplines.

Liberal arts and management program: large public university
In this program, students complete a major in one of the traditional arts and sciences fields while taking a cluster of related business courses. Students are required to participate in special seminars offered in the second, third, and fourth years. These seminars compare and contrast the values, perspectives, and assumptions of arts and sciences disciplines with

those of business. Each seminar is designed and team-taught by participating faculty members. Topics addressed in the seminars include American culture, processes of problem solving and decision making, and leadership.

CONNECTED LEARNING

[F]ostering capacities for reflection on what happens beyond the academy must be the larger goal. The discourse of the academy is but a means to an end . . . to [develop] the capacity for constructing relationships among various modes of knowledge and curricular experiences, the capacity for applying learning from one context to another . . . [and] the capacity for relating academic learning to the wider world, to public issues and personal experience. (p. 14)

Integrative cultural studies seminar: private comprehensive university
Faculty members have developed an integrative seminar that enables students in area and gender studies to discuss crosscutting themes and issues. Students usually take the course as sophomores; some use it to prepare to study abroad. Those selecting the integrative seminar also must register simultaneously for one of a dozen designated courses that address issues related to the cultural studies seminar. The integrative seminar challenges students to ask whether any common features characterize the human condition and culture. The seminar also helps students place their particular interests and learning in a larger multidisciplinary and critical context. At an early stage in their studies, the seminar teaches students to look for connections across courses and concentrations.

Liberal arts program: mid-size, private comprehensive university
To serve returning adults, this program has several practices that help students connect academic and experiential learning. Before applying to the program, all students take a three-day workshop designed to help them identify their educational goals in relation both to the school's requirements and to their out-of-school or previously accredited learning. Those who matriculate take a credit-bearing degree-planning seminar that helps them develop a concentration. They negotiate a written plan for study with academic advisors and community-based advisors in their chosen field. All concentrations must include a senior project and a related out-of-school internship. Before graduation, students take a common seminar that encourages them to identify continuing goals for learning in or out of school.

Cross-disciplinary senior seminars: small private university
All graduating seniors at this institution are required to take a semester-long, three-credit seminar in which they do research on some issue of social consequence from several different–sometimes conflicting–perspectives. This experience is designed to help them learn how to investigate, analyze, and synthesize information about practical, personal, and societal issues using skills developed through their academic training. Involvement in written and oral presentations about their research enhances students' ability to communicate and enter into dialogue with others about such issues.

Interdisciplinary senior seminars: large private university
Each semester, seniors participate in seminars that focus on prominent issues or topics of societal significance. The seminars take advantage of the skills and knowledge students bring from particular academic disciplines to an interdisciplinary exploration of real-world problems. Active learning strategies, including field or experiential learning components, are emphasized in these courses.

Program on Science in Society: small private university
This major helps students explore interrelationships among scientific knowledge, society, and the quality of human life. In addition to fulfilling requirements in science, quantitative analysis, and political theory or ethics, all students are required to take four colloquia that set science topics in a larger context–for example, philosophy of science, sociology of science, or technology and public policy. The program's colloquia and advanced seminars frequently incorporate field study and other forms of experiential learning; students may do group, as well as individual, projects. All students are required to complete a senior thesis and to pass an oral examination conducted by external examiners. The oral examination explores seniors' capacity to link their research to broader societal issues and questions.

INCLUSIVENESS

Faculty members in each program must explore what obstacles their fields present to the participation of discrete groups of underrepresented students and make a strong commitment to eliminating those obstacles. (p. 17)

Faculty development program: small private college
The program derives from this college's commitment to prepare students to function effectively in a multicultural, multiracial society. Majors are being transformed

through a grant-supported faculty development program designed to broaden faculty members' knowledge of multicultural content and concepts. Faculty participants take a semester-long seminar with an outside preceptor, do concurrent work with an individual mentor in each professor's field, revise a course, develop classroom exercises in preparation for student involvement in a multicultural society, and participate in a week-long summer institute. Faculty members subsequently observe each other's newly revised courses.

Revisions in the mathematics program: large state university
After careful analysis, professors in the mathematics program at this university determined that the difficulties many minority students experienced in their program were related to social and study habits that left them at a disadvantage. Accordingly, they restructured courses, pedagogical strategies, and support services to meet the intellectual and social needs of these students. The program emphasizes helping students develop their understanding of mathematical concepts as well as their problem-solving skills. Faculty members also help students develop collaborative learning skills. Their work has been widely disseminated and adapted to different institutional settings.

Women's studies program: large public university
This program gives high priority to challenging racism. The program offers four to six courses each semester on women of color in the U.S. and the Third World, and each student major or minor is required to take at least one course in the women-of-color component of the program. In addition, one-third to one-half of the content in the required introductory courses in the major addresses the experiences of women of color. There has been extensive faculty discussion as to whether all courses should examine work on women of color. The women's studies program is complemented by the university's general-education program, which requires all students to take a course in world studies and a separate course in American pluralism.

Biology program: large state university
This university serves a state whose population is predominantly white. The biology program has chosen several approaches to increase the number of minority students choosing to major in biology. The program prepared an exhibit aimed at secondary-school students, "Minorities in Science." In a joint program with the university's medical school, the undergraduate biology program recruits minority high school stu-

dents for summer research programs. A small number of talented high school students from these programs are offered four-year, twelve-month, fully paid scholarships that include affiliation with an active faculty mentor and the mentor's laboratory. The laboratory personnel–including professors, postdoctoral fellows, graduate students, and other undergraduates–provide support groups for the students during their college years. This university also offers paid summer research internships to minority and female students from other colleges and universities to encourage them to choose careers in biological sciences.

Program in a college of natural sciences: large state university

This program, located in the mathematics department, has strengthened an existing course in ways that lead to improved performance by minority students in both mathematics and the natural sciences. Following a review of entrance records, students are nominated to take part in the program. Others may request admission or be recommended by advisors. The core of the program is an enriched recitation section in which students work together on challenging mathematical problems that have been chosen to help students explore mathematical principles, discover patterns, and encounter the possibility of alternative ways to solve problems. Students work in groups and must argue with one another their choice of approach; faculty members assist by facilitating students' exploration of underlying principles and patterns. The interactive process shapes a multiethnic community held together by students' work on a common discipline, rather than social or ethnic identities. The program also addresses career goals. Preliminary results show students' increased competence and confidence in their mathematical abilities and an increase in the number of minority students choosing to pursue advanced study in mathematics.

Prediction formula: large public university

Working under the supervision of tenured faculty members in a biology department, a doctoral student developed a prediction formula that can be used to identify women who are likely to become dropouts from science majors. The researcher identified attitudinal and sociocultural variables associated with leaving science; she also identified specific problems that women perceive in science majors, such as a lack of role models and female friends in the program and a perception that science courses are male-oriented. Using the prediction formula, senior

faculty members in the department invited women considered "at risk" to take part in a special credit-bearing seminar. The seminar was modeled after similar programs that have been strikingly successful in helping women and minorities persist in engineering programs. Students explored career options in science, met women scientists, visited job sites, reviewed research on women's experiences in different scientific fields, and worked on self-assessment and skills development. Evaluation of the first seminar group showed that eighteen of twenty participants remained in science and sought jobs in science following graduation.

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The Association of American Colleges is the only institutional membership higher education association whose primary mission is improving undergraduate liberal education. AAC's goals—promoting lifelong humane and liberal learning, strengthening institutions of higher education as settings for liberal learning, and extending the benefits of liberal learning to all—are carried out through research, projects, publications, and workshops.

AAC's programs reflect its commitment to enhancing public understanding of liberal learning, strengthening general and specialized curricula, improving teaching and learning, increasing opportunities for equity and achievement, and development institutional and academic leadership. Founded in 1915, AAC comprises more than 620 public and private colleges and universities.